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Further Considerations for Foliar Fungicides on Corn and Soybean

By Daren Mueller and Alison Robertson, Department of Plant Pathology

We continue to receive e-mails and phone calls regarding the use of foliar fungicides on corn and soybean. Grain prices are down, fungicide prices are up, and this growing season, economics is likely playing a bigger role in the decision to apply a fungicide to either corn or soybean. We would like to bring up a couple more considerations for the decision making process, and also reiterate a couple of points made in previous articles

Soybeans

Iowa Soybean Rust Sentinel Plot Network

Soybean rust scouting in sentinel plots across the United States creates information for the real-time [USDA ipmPIPE Soybean Rust Web site](#). The sentinel plots system is sponsored by the North Central Soybean Research Program, the United Soybean Board, and the United States Department of Agriculture. These plots of soybean or kudzu stretch from Florida to Texas and up through the Midwest. In 2008, sentinel plots were established in Mexico for the first time.

This year, 13 sentinel plots have been established across Iowa. We have been monitoring fields in these counties with the help of several ISU Extension field agronomists and staff at nine of the Iowa State University Research farms. Sampling began in the middle of June and will continue through September. To date, we have seen frogeye leaf spot, brown spot and more recently bacterial blight.

1. Fungicides control fungal diseases. Speaking of bacterial blight – after the heavy storms from a few weeks ago, this disease has been seen in many fields. Remember, this disease will NOT be affected by fungicides so be sure to properly identify the foliar diseases.

2. Timing of application. Currently, brown spot and frogeye leaf spot are the only two foliar diseases seen in Iowa that would be affected by a foliar fungicide application. Research done at ISU has shown the best time to apply a foliar fungicide to manage either of these diseases is R3. At this time, disease severity starts to rapidly increase. Research is underway to develop disease thresholds to aid the decision-making process.

Corn

1. Decisions should be made on a field by field basis. In some fields in southwest Iowa, [gray leaf spot levels are at threshold levels](#), and further north one might argue eyespot is also at threshold. Scouting is important to determine in which fields disease pressure exists *since many fields are not at threshold*.

2. Fungicide applications may be profitable when disease pressure is high. Cost of a fungicide application is approximately \$26 to \$28 per acre and with grain prices hovering around \$3.25 per bushel;

some may choose not to spray. [Greg Shaner \(Purdue University\)](#) reported a mean yield response of 7.5 bu/acre when gray leaf spot disease severity on the ear leaf was greater than 5 percent at R5 to R6 (Figure 1). Therefore when disease pressure is high and a hybrid appears susceptible to disease, a foliar application of a fungicide can be profitable.



Figure 1. Image of gray leaf spot of corn created using Severity.Pro software representing 5 percent disease severity.

3. Increased foliar disease severity increases the risk for stalk rot diseases. Thus sufficient foliar disease pressure can result in stalk quality and standability issues at harvest. Carl Bradley at University of Illinois reported data supporting this last week (see [Effect of Fungicides on Corn Stalk Quality](#)).

4. Disease triangle. Environment is critical for further disease development. If the weather dries up, foliar disease progress will slow or stop, which would minimize the effect of disease.

5. Fungicides control fungal diseases. Goss's wilt and Holcus leaf spot have both been reported in Iowa. Since both are caused by bacteria, a fungicide is not effective against these diseases

6. Grain moisture and quality issues. Grain moisture of corn sprayed with a fungicide may be one half to a couple of percent higher than unsprayed corn. Not only does this extra moisture result in higher drying costs but grain quality issues are more likely (see [Corn Quality Issues Continue](#)).

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